

ABSTRACT

[Abstract]

[Problems] Carbides and many other non-platinum-based compounds are activated and dissolved and cannot be stably present in an acidic electrolyte under conditions of an electrode potential as high as 0.4 V or above, and thus, the application range of these compounds as an electrode catalyst is limited to low electrode potentials. There has been need for development of an electrode catalyst that maintains catalytic activity under these conditions and exhibits improved stability.

[Means for Solving Problems] To provide a metal oxynitride electrode catalyst composed of an oxynitride containing at least one transition metal element selected from the group consisting of La, Ta, Nb, Ti, and Zr, the metal oxynitride electrode catalyst being used at a potential of 0.4 V or higher relative to the reversible hydrogen electrode potential in an acidic electrolyte. The metal oxynitride electrode catalyst is useful as an electrode catalyst for electrochemical systems used in acidic electrolytes in the fields of water electrolysis, organic electrolysis, fuel cells, etc.